

REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1-2 and 6 are amended. Claims 1-6 are pending in the application.

I. Rejection under 35 U.S.C. § 103

Related Art in view of Yoshida

As per the Examiner phone interview conducted on July 12, 2006, the Applicants are appreciative of the indication by the Examiner of the patentable material, and thus claims 1-2 and 6 have been amended in line with the Examiner's indication.

Claims 1-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Prior Art Figures 2 and 3 in view of Yoshida et al. (U.S. Patent Nos. 5,990,570, 6,163,082 or 2001/0054847). This rejection is respectfully traversed because the combination of the related art and Yoshida does not discuss or suggest that:

the 0V of the circuit system is connected to the earth plate by the shield braid of the shielded cable, causing impedance for frequency that constitutes the basis of noise upon the circuit system to decrease, thereby lessening influence of the noise upon the system,

as recited in amended independent claims 1-2 and 6.

As a non-limiting example, the present invention as set forth in claim 2, for example, is directed to an inverter unit including a sensor detecting a state of a motor and a circuit system with a sensor circuit for the sensor. The sensor circuit is connected with the sensor by a shielded cable having a shield braid which is connected to a 0V of the circuit system and an earth plate outside the inverter unit. The 0V of the circuit system is connected to the earth plate by the shield braid of the shielded cable. Impedance for high frequency that constitutes the basis of noise upon the circuit system is caused to decrease, and current that is influenced by the noise flows into the earth plate, so that the influence of the noise is lessened.

The related art includes a sensor circuit in an inverter unit connected to a sensor by a shielded cable and a shield braid of the shielded cable is connected to an earth plate located outside the inverter unit. A 0V of the circuit system is separately connected to an earth plate. The related art does not discuss or suggest that the 0V of the circuit system is connected to the earth plate by the shield braid of the shielded cable, causing impedance for frequency that

constitutes the basis of noise upon the circuit system to decrease, thereby lessening influence of the noise upon the system, as recited in independent claims 1-2 and 6. While the connection of a 0V line 6 extending from the sensor circuit 2 to the earth plate 8 in Fig. 2 of the related art is electrically similar to the connection of the 0V line 6 to the grounded shield braid 5 in Fig. 1 of the present invention, the effect of suppressing high-frequency noise that the sensor circuit receives is greater in the case of the present invention than in the related art. The larger surface area of the shield braid as a conductor, in the present invention, provides for lower impedance than when the 0V line is directly connects the sensor circuit 2 to the earth plate 8. Further, as the shield braid 5 extends very close to the circuit system 2, the present invention allows for the shield braid 5 to be directly connected to the circuit system 2 so that a separate wire such as used in Fig. 2 of the related art is unnecessary.

Yoshida discusses that abnormality detection circuit 110 is connected to the electric power line 1a and the electric conductive body 1c of the electric power cable 1 through the connector terminals X, Y and Z. In Yoshida, "the electric conductive body 1c of the electric power cable 1 is separated from the electric power lines 1a by the insulation material 1b, and is shielded by the insulation material 1d" (col. 7, lines 60-63). In Fig. 6, Yoshida shows that the conductive material 1c is connected to the connector terminal X and through the connector terminal Y to resistor 110d and to the ground. Yoshida does not discuss or suggest connecting a 0V of a circuit system with a shield braid of a shielded cable connecting a sensor circuit and a sensor, where the shield braid is connected to an earth plate outside an inverter unit and where the 0V of the system is connected to the earth plate by the shield braid, causing impedance for frequency that constitutes the basis of noise upon the circuit system to decrease such that the influence of noise upon the system is lessened, as recited in amended independent claims 1-2 and 6.

The combination of the related art and Yoshida does not suggest connecting the 0V line to a shield braid which is connected to an earth plate outside the inverter unit, where the 0V of the circuit system is connected to the earth plate by the shield braid, which causes impedance for high frequency that constitutes the basis of noise upon the circuit system to decrease, thereby lessening influence of the noise upon the system. The applicants respectfully submit that the rejection fails to establish a *prima facie* case of obviousness because the combination of the related art and Yoshida does not teach all the features of amended independent claims 1-2 and 6 and that a particular motivation to combine the references is not recited. Therefore, amended independent claims 1-2 and 6 patentably distinguish over the references relied upon. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Claims 3-5 depend either directly or indirectly from independent claim 2 and include all the features of claim 2, plus additional features that are not discussed or suggested by the references relied upon. For example, claim 3 recites that "the sensor detects the position or speed of the motor, the magnetic pole position of a rotor of the motor, the temperature of the motor, or the acceleration of the motor, and the sensor circuit processes signals from the sensor." Therefore, claims 3-5 patentably distinguish over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

JP '765 in view of JP '152, JP '685 or JP '681

Claims 1-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2002-281765 in view of JP 2001-286152, JP 2000-195685 or JP 10-135681. This rejection is respectfully traversed.

JP '765 discusses the use of a shielded cable where one of the end portions of the shielded cables 19A, 22A are grounded to the ground pole 26. The inverter is connected to ground 28. JP '765 does not discuss or suggest connecting a 0V of a circuit system with a shield braid of a shielded cable connecting a sensor circuit and a sensor, where the shield braid is connected to an earth plate outside an inverter unit, as recited in independent claim 1 and similarly in claim 6, and JP '765 does not discuss or suggest that a sensor circuit is connected with a sensor by a shielded cable having a shield braid, the shield braid being connected to a 0V of a circuit system and an earth plate outside the inverter unit, as recited in claim 2. Further, JP '765 does not discuss or suggest that the 0V of the circuit system is connected to the earth plate by the shield braid of the shielded cable, causing impedance for frequency that constitutes the basis of noise upon the circuit system to decrease, thereby lessening influence of the noise upon the system. The Examiner indicates that JP '152, JP '685 or JP '681 make up for the deficiency in JP '765. The Applicants respectfully disagree that JP '152, JP '685 and JP '681 make up for the deficiency.

JP '152 discusses a grounding structure for an inverter system where an insulating material 41 is laid between the inverter-unit box and the conductive floor or structure. Each earth terminal 1E, 2E of the inverter-unit box in JP '152 and the box of the motor are connected to each other by a conductive member 43. The inverter-unit box and the box of the motor are grounded to individual earth plates 15 and 33, and there is no indication that a 0V line of the circuit system is connected with a shield braid of a shielded cable connecting a sensor circuit and the sensor, where the shield braid is connected to an earth plate outside the inverter unit.

JP '685 discusses a discharge lamp lighting device in which an earth connection 120c is connected to the earth side of a power source, and merely discusses that the earth connection and the base 122 are connected for grounding by a screw 126. JP '685 does not discuss or suggest that a 0V line of the circuit system is connected with a shield braid of a shielded cable connecting a sensor circuit and the sensor, where the shield braid is connected to an earth plate outside the inverter unit. JP '681 discusses a variable speed driving device where the core of a coaxial cable 1 is used for the connection between the output terminal of a PWM inverter 3 and the input terminal of an AC motor and both ends of the outer conductor of the cable 11 are respectively connecting to the grounding terminals of the inverter 3 and the motor 5. Each of the motor and the inverter frames are connected to the ground individually. There is no indication that a 0V line of the circuit system is connected with a shield braid of a shielded cable connecting a sensor circuit and the sensor, where the shield braid is connected to an earth plate outside the inverter unit.

Further, JP '765 does not discuss or suggest that the 0V of the circuit system is connected to the earth plate by the shield braid of the shielded cable, causing impedance for frequency that constitutes the basis of noise upon the circuit system to decrease, thereby lessening influence of the noise upon the system, as recited in independent claims 1-2 and 6. JP '152, JP '685 or JP '681 do not make up for this deficiency.

Therefore, as the combination of JP '765 with either JP '152, JP '685 or JP '681 does not teach all of the claim features of amended independent claims 1-2 and 6, claims 1-2 and 6 patentably distinguish over the references relied upon. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Claims 3-5 depend either directly or indirectly from independent claim 2 and include all the features of claim 2, plus additional features that are not discussed or suggested by the references relied upon. Therefore, claims 3-5 patentably distinguish over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Conclusion

In accordance with the foregoing, claims 1-2 and 6 are amended. Claims 1-6 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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